Application for Locally Adopted Energy Standards by the County of Santa Clara in Accordance With Section 10-106 of the California Code of Regulations, Title 24, Part 1

June 15, 2009

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1.0 Executive Summary

The County of Santa Clara City Board of Supervisors approved and adopted its Green Building Ordinance on June 6, 2009. This is a new ordinance which is scheduled to take effect on or soon after August 1, 2009. Gabel Associates has researched and reviewed the feasibility and energy cost-effectiveness of permit applicants exceeding the state's 2008 Building Energy Efficiency Standards in order to meet the minimum energy efficiency requirements of the proposed ordinance.

Overall Scope of the Ordinance

New ordinance or revision to previous ordinance?	New Ordinance
Projected Effective Date:	August 1, 2009
Green building or stand-alone energy ordinance?	Green Building Ordinance
Do minimum energy requirements increase after initial effective date?	No
Occupancies covered?	Single Family Houses
Energy requirements apply to new construction, additions, alterations?	New Construction, Additions and Major Remodels
Special or unusual energy requirements?	No
Third party verification?	GreenPoint Verification
Implementation details in the ordinance or in a separate document?	No

The County of Santa Clara has formally communicated to its Building Safety Division staff that it support and properly enforce the 2008 Building Energy Efficiency Standards (Title 24 Part 6).

Key Features of the Ordinance By Occupancy Type

Occupancy Type	General Requirements	Minimum Energy Requirement
New Single Family Homes and "Rebuilds":	2009 GreenPoint Rated:	
≤ 1200 SF	No Requirement	2008 Title 24 Standards
1200 SF ≤ 3,000 SF	50 points	15% Better-than-Title 24
> 3,000 SF	50 points + 1 point for each additional 100 SF > 3,000 SF	15% Better-than-Title 24
Remodels of and Additions to Single Family Homes:	2009 GreenPoint Rated:	
Minor Remodels and Additions < 500 SF	No Requirement	2008 Title 24 Standards
Major Remodels and Additions ≥ 500 SF	GPR for Existing Homes	2008 Title 24 Standards and GPR for Existing Homes

2.0 Impacts of the New Ordinance

The energy performance impacts of the Ordinance have been evaluated using several case studies which collectively reflect a broad range of building types.

- Single family house: 2-story 2,682 sf
- Single family house: 2-story 5,074 sf
- Existing 1-story single family house w/ 1,070 sf Addition

The methodology used in the case studies is based on the way that real buildings are designed and evaluated to meet or exceed the energy standards.

(a) Each prototype building design is tested for compliance with the 2008 Standards, and all energy measures are adjusted with common construction options to just barely meet the Standards. The energy measures chosen are a combination of measures which reflects how designers, builders and developers are likely to achieve a specified level of performance.

(b) Starting with a 2008 Standards minimally compliant set of measures, various items are changed to just reach the minimum energy performance required by the Ordinance (e.g, 15% better than 2008 Title 24). In this study, the design choices are based on many years of experience with architects, mechanical engineers and builders and general knowledge of the relative incremental costs of most measures. The intent of this approach is for the study to reflect how building energy performance is actually studied and used to select final energy measures.

(c) A minimum and maximum range of incremental costs of added energy measures is established by a variety of research means. A construction cost estimator, Building Advisory LLC, was contracted to conduct research and surveys to obtain accurate and current measure cost information. Site energy in KWh and Therms, is calculated for each run to establish the annual energy savings, energy cost savings and CO2-equivalent reductions in greenhouse gases.

2.1 New Single Family Homes

Energy design descriptions of the single family building prototypes which just meet the 2008 Title 24 Building Energy Efficiency Standards:

Single Family House: 2,682 square feet, 2-story, 21.1% glazing/floor area ratio – Option A

Energy Efficiency Measures
R-38 Roof w/ Radiant Barrier
R-15 Walls
R-19 Raised Floor
Low E2 Vinyl Windows, U=0.36, SHGC=0.30
Furnace: 80% AFUE
Air Conditioner: 13 SEER
R-8 Attic Ducts
50 Gallon Gas Water Heaters: EF=0.60

Single Family House: 2,682 square feet, 2-story, 21.1% glazing/floor area ratio – Option B

Energy Efficiency Measures
R-38 Roof w/ Radiant Barrier
R-15 Walls
R-19 Raised Floor
Low E2 Vinyl Windows, U=0.36, SHGC=0.30
Furnace: 80% AFUE
Air Conditioner: None
R-8 Attic Ducts
50 Gallon Gas Water Heaters: EF=0.60

Single Family House: 5,074 square feet, 2-story, 22.7% glazing/floor area ratio – Option A

Energy Efficiency Measures
R-38 Roof w/ Radiant Barrier
R-13 Walls
R-19 Raised Floor
Housewrap
Low E2 Vinyl Windows, U=0.36, SHGC=0.30
(2) Furnaces: 80% AFUE
(2) Air Conditioners: 13 SEER
(2) Air Conditioners: TXV + Refrig. Charge (HERS)
R-6 Attic Ducts
Reduced Duct Leakage/Testing (HERS)
(2) 50 Gallon Gas Water Heaters: EF=0.62
Pipe Insulation

Single Family House: 5,074 square feet, 2-story, 22.7% glazing/floor area ratio – Option B

Energy Efficiency Measures
R-38 Roof w/ Radiant Barrier
R-13 Walls
R-19 Raised Floor
Housewrap
Low E2 Vinyl Windows, U=0.36, SHGC=0.30
(2) Furnaces: 80% AFUE
(2) Air Conditioners: 13 SEER
(2) Air Conditioners: TXV + Refrig. Charge (HERS)
R-6 Attic Ducts
Reduced Duct Leakage/Testing (HERS)
(2) 50 Gallon Gas Water Heaters: EF=0.62
Pipe Insulation

Energy Measures Needed to Meet the City's Ordinance

The following energy features have been modified from the Title 24 set of measures so that the house design uses 15% less TDV energy than the corresponding Title 24 base case design per the 2009 GreePoint Rated minimum energy requirement. The incremental first cost to provide that measure in comparison with the equivalent base case measure is listed to the right.

The incremental energy improvements specified above to meet the proposed Ordinance requirements are variables selected by designer, builder or owner. There are a number of considerations in choosing the final mix of energy measures including first cost, aesthetics, maintenance and replacement.

15% Better Than Title 24 Base Case, Option A **2682 sf**

Energy Efficiency Measures	Change Type	Incremental Cost Estimate		
		Min	Max	Avg
R-38 Roof w/ Radiant Barrier	-	$ -	$ -	$ -
R-15 Walls	-	$ -	$ -	$ -
R-19 Floor	-	$ -	$ -	$ -
Low E2 Vinyl Windows, U=0.36, SHGC=0.30	-	$ -	$ -	$ -
Furnace: 90% AFUE (from 80% AFUE)	Upgrade	$ 500	$ 1,000	$ 750
Air Conditioner: 13 SEER, 11 EER (HERS)	Upgrade	$ 25	$ 75	$ 50
Air Conditioner: TXV + Refrig. Charge (HERS)	Upgrade	$ 100	$ 150	$ 125
R-8 Attic Ducts	-	$ -	$ -	$ -
Reduced Duct Leakage/Testing (HERS)	Upgrade	$ 300	$ 600	$ 450
50 Gallon Gas Water Heater: EF=0.62 (from EF=0.60)	Upgrade	$ 100	$ 200	$ 150
Total Incremental Cost of Energy Efficiency Measures:		**$ 1,025**	**$ 2,025**	**$ 1,525**
Total Incremental Cost per Square Foot:		**$ 0.38**	**$ 0.76**	**$ 0.57**

15% Better Than Title 24 Base Case, Option B **2682 sf**

Energy Efficiency Measures	Change Type	Incremental Cost Estimate		
		Min	Max	Avg
R-38 Roof w/ Radiant Barrier	-	$ -	$ -	$ -
R-15 Walls	-	$ -	$ -	$ -
R-19 Floor	-	$ -	$ -	$ -
Low E2 Vinyl Windows, U=0.36, SHGC=0.30	-	$ -	$ -	$ -
Housewrap: 2,137 sf @ $0.08 to 0.12/sf	Upgrade	$ 171	$ 256	$ 214
Furnace: 90% AFUE (from 80% AFUE)	Upgrade	$ 500	$ 1,000	$ 750
Air Conditioner: None	-	$ -	$ -	$ -
R-8 Attic Ducts	-	$ -	$ -	$ -
Reduced Duct Leakage/Testing (HERS)	Upgrade	$ 300	$ 600	$ 450
50 Gallon Gas Water Heater: EF=0.62 (from EF=0.60)	Upgrade	$ 100	$ 200	$ 150
Total Incremental Cost of Energy Efficiency Measures:		**$ 1,071**	**$ 2,056**	**$ 1,564**
Total Incremental Cost per Square Foot:		**$ 0.40**	**$ 0.77**	**$ 0.58**

15% Better Than Title 24 Base Case, Option A — 5074 sf

Energy Efficiency Measures	Change Type	Incremental Cost Estimate		
		Min	Max	Avg
R-38 Roof w/ Radiant Barrier	-	$ -	$ -	$ -
R-15 Walls (from R-13): 2,590 sf @ $0.12 to $0.20/sf	Upgrade	$ 311	$ 518	$ 414
R-30 Raised Floor (from R-19): 3,044 sf @ $0.10 to $0.25	Upgrade	$ 304	$ 761	$ 533
Housewrap	-	$ -	$ -	$ -
Super Low E Vinyl Windows, U=0.36, SHGC=0.23, 1151.8 sf @ $1.40 - $1.60 / sf	Upgrade	$ 1,613	$ 1,843	$ 1,728
(2) Furnaces: 92% AFUE (from 80% AFUE)	Upgrade	$ 1,000	$ 2,400	$ 1,700
(2) Air Conditioners: 15 SEER, 12 EER (HERS)	Upgrade	$ 1,000	$ 3,000	$ 2,000
(2) Air Conditioners: TXV + Refrig. Charge (HERS)	-	$ -	$ -	$ -
R-8 Attic Ducts	Upgrade	$ 400	$ 600	$ 500
Reduced Duct Leakage/Testing (HERS)	-	$ -	$ -	$ -
(2) 50 Gallon Gas Water Heaters: EF=0.62	-	$ -	$ -	$ -
Pipe Insulation	-	$ -	$ -	$ -
Total Incremental Cost of Energy Efficiency Measures:		**$ 4,628**	**$ 9,122**	**$ 6,875**
Total Incremental Cost per Square Foot:		**$ 0.91**	**$ 1.80**	**$ 1.35**

15% Better Than Title 24 Base Case, Option B — 5074 sf

Energy Efficiency Measures	Change Type	Incremental Cost Estimate		
		Min	Max	Avg
R-38 Roof w/ Radiant Barrier	-	$ -	$ -	$ -
R-19 Walls (from R-13): 2,590 sf @ $0.30 to $0.40/sf	Upgrade	$ 777	$ 1,036	$ 907
R-30 Raised Floor (from R-19): 3,044 sf @ $0.10 to $0.25	Upgrade	$ 304	$ 761	$ 533
Housewrap	-	$ -	$ -	$ -
Low E2 Vinyl Windows, U=0.36, SHGC=0.30	-	$ -	$ -	$ -
(2) Furnaces: 92% AFUE (from 80% AFUE)	Upgrade	$ 1,000	$ 2,400	$ 1,700
(2) Air Conditioners: 13 SEER, 11 EER (HERS)	Upgrade	$ 50	$ 150	$ 100
(2) Air Conditioners: TXV + Refrig. Charge (HERS)	-	$ -	$ -	$ -
R-8 Attic Ducts	Upgrade	$ 400	$ 600	$ 500
Reduced Duct Leakage/Testing (HERS)	-	$ -	$ -	$ -
(2) 50 Gallon Gas Water Heaters: EF=0.62	-	$ -	$ -	$ -
Pipe Insulation	-	$ -	$ -	$ -
Total Incremental Cost of Energy Efficiency Measures:		**$ 2,531**	**$ 4,947**	**$ 3,739**
Total Incremental Cost per Square Foot:		**$ 0.50**	**$ 0.97**	**$ 0.74**

2.2 Addition to Existing Home

For all new low-rise residential case studies modeled in Section 2.1, a 2008 standards research version of Micropas was used to generate results. That research Micropas version does not have the capability to model the "Existing + Addition" permit scenario in which the energy measures of the existing building are upgraded as part of enabling the addition to meet the standards, nor does it contain the 2009 GreenPoint Rated calculation for GPR for Existing Homes . The following analysis was done with EnergyPro v4.4; and because the 2008 standards generally exceed the 2005 standards by roughly 15%, the following study was done using EnergyPro v4.4 so that the addition exceeds the 2005 standards by 30% (e.g., 15% different between current and new code + 15% better than new code). A more precise calculation can be done only when the final release versions of the 2008 programs – EnergyPro v.5 and Micropas 8 – are available. As a result, the following results do not have the same accuracy of the above case studies, but they illustrate the general scale of energy efficiency improvements that will be likely under the 2008 standards using the Existing + Addition approach.

Energy design descriptions of the existing-plus-addition prototype which just meet the 2008 Title 24 Building Energy Efficiency Standards are listed below:

Option A1: Existing 1-Story Home w/ 1,070 sf Addition, total E+A = 2,845 sf, 19.7% glazing/floor area ratio

Energy Efficiency Measures
Addition: R-30 Roof
Addition: R-13 Walls
Addition: R-19 Raised Floor
Existing: R-11 Attic Roof
Existing: R-11 Vaulted Roof
Existing: R-0 Walls
Existing: R-0 Raised Floor
Existing: R-0 Slab on Grade
Addition: Deflt Low E Vinyl Windows, U=0.53, SHGC=0.65
Existing: Single Wood Windows, U=0.99, SHGC=0.74
E+A: Furnace: 80% AFUE
E+A: Air Conditioner: 13 SEER
E+A: R-6 Attic Ducts
E+A: 50 Gallon Gas Water Heater: EF=0.60

Option A2: Existing 1-Story Home w/ 1,070 sf Addition, total E+A = 2,845 sf, 19.7% glazing/floor area ratio

Energy Efficiency Measures
Addition: R-38 Roof w/Radiant Barrier
Addition: R-13 Walls
Addition: R-19 Raised Floor
Existing: R-30 Attic Roof
Existing: R-11 Vaulted Roof
Existing: R-0 Walls
Existing: R-0 Raised Floor
Existing: R-0 Slab on Grade
Addition: Low E Vinyl Windows, U=0.40, SHGC=0.36
Existing: Single Wood Windows, U=0.99, SHGC=0.74
E+A: Furnace: 80% AFUE
E+A: Air Conditioner: 8 SEER (Existing AC pre-1978)
E+A: R-6 Attic Ducts
E+A: 50 Gallon Gas Water Heater: EF=0.60

Option B: Existing 1-Story Home w/ 1,070 sf Addition, total E+A = 2,845 sf, 19.7% glazing/floor area ratio

Energy Efficiency Measures
Addition: R-38 Roof w/ Radiant Barrier
Addition: R-13 Walls
Addition: R-19 Raised Floor
Existing: R-30 Attic Roof
Existing: R-11 Vaulted Roof
Existing: R-0 Walls
Existing: R-0 Raised Floor
Existing: R-0 Slab on Grade
Addition: Low E Vinyl Windows, U=0.40, SHGC=0.36
Existing: Single Wood Windows, U=0.99, SHGC=0.74
E+A: Furnace: 80% AFUE
E+A: Air Conditioner: None
E+A: R-6 Attic Ducts
E+A: 50 Gallon Gas Water Heater: EF=0.60

Energy Measures Needed to Meet the City's Ordinance

Option A1: Exceeding 2008 Title 24 Standards by 15%

Energy Efficiency Measures	Change Type	Incremental Cost Estimate		
		Min	Max	Avg
Addition: R-38 Roof w/ Radiant Barrier (from R-30 without Radiant Barrier): 1,070 sf @ 0.30 to 0.40 /sf	Upgrade	$ 321	$ 428	$ 375
Addition: R-13 Walls	-	$ -	$ -	$ -
Addition: R-19 Raised Floor	-	$ -	$ -	$ -
Existing: R-38 Attic Roof (from R-11): 970 sf @ 1.00 to 1.50/sf	Upgrade	$ 970	$ 1,455	$ 1,213
Existing: R-11 Vaulted Roof	-	$ -	$ -	$ -
Existing: R-0 Walls	-	$ -	$ -	$ -
Existing: R-0 Raised Floor	-	$ -	$ -	$ -
Existing: R-0 Slab on Grade	-	$ -	$ -	$ -
Addition: NFRC-rated Low E Vinyl Windows, U=0.40, SHGC=0.36 (from Default U=0.53, SHGC=0.65): 283.6 sf @ $1.00 to $2.50/sf	Upgrade	$ 284	$ 709	$ 496
Existing: Single Wood Windows, U=0.99, SHGC=0.74	-	$ -	$ -	$ -
E+A: Furnace: 92% AFUE (from 80% AFUE)	Upgrade	$ 1,500	$ 2,700	$ 2,100
E+A: Air Conditioner: 13 SEER	-	$ -	$ -	$ -
E+A: R-6 Attic Ducts	-	$ -	$ -	$ -
E+A: 50 Gallon Gas Water Heater: EF=0.60	-	$ -	$ -	$ -
Total Incremental Cost of Energy Efficiency Measures:		**$ 3,075**	**$ 5,292**	**$ 4,183**
Total Incremental Cost per Square Foot:		**$ 1.08**	**$ 1.86**	**$ 1.47**

Option A2: Exceeding 2008 Title 24 Standards by 15%

Energy Efficiency Measures	Change Type	Incremental Cost Estimate		
		Min	Max	Avg
Addition: R-38 Roof w/ Radiant Barrier	-	$ -	$ -	$ -
Addition: R-13 Walls	-	$ -	$ -	$ -
Addition: R-19 Raised Floor	-	$ -	$ -	$ -
Existing: R-38 Attic Roof (from R-30): 970 sf @ 0.50 to 1.00/sf	Upgrade	$ 485	$ 970	$ 728
Existing: R-11 Vaulted Roof	-	$ -	$ -	$ -
Existing: R-0 Walls	-	$ -	$ -	$ -
Existing: R-0 Raised Floor	-	$ -	$ -	$ -
Existing: R-0 Slab on Grade	-	$ -	$ -	$ -
Addition: Low E Vinyl Windows, U=0.40, SHGC=0.36	-	$ -	$ -	$ -
Existing: Single Wood Windows, U=0.99, SHGC=0.74	-	$ -	$ -	$ -
E+A: Furnace: 92% AFUE (from 80% AFUE)	Upgrade	$ 1,500	$ 2,700	$ 2,100
E+A: Air Conditioner: 13 SEER (replacing existing pre-1978 8 SEER AC)	Upgrade	$ 2,000	$ 3,200	$ 2,600
E+A: R-6 Attic Ducts	-	$ -	$ -	$ -
E+A: 50 Gallon Gas Water Heater: EF=0.60	-	$ -	$ -	$ -
Total Incremental Cost of Energy Efficiency Measures:		**$ 3,985**	**$ 6,870**	**$ 5,428**
Total Incremental Cost per Square Foot:		**$ 1.40**	**$ 2.41**	**$ 1.91**

Option B: Exceeding 2008 Title 24 Standards by 15%

Energy Efficiency Measures	Change Type	Incremental Cost Estimate		
		Min	Max	Avg
Addition: R-38 Roof w/ Radiant Barrier	-	$ -	$ -	$ -
Addition: R-21 Walls (from R-13): 923 sf @ $0.36 to $0.46/sf	Upgrade	$ 332	$ 425	$ 378
Addition: R-30 Raised Floor (from R-19): 1,070 sf @ $0.10 to $0.25/sf	Upgrade	$ 107	$ 268	$ 187
Existing: R-38 Attic Roof (from R-30): 970 sf @ 0.50 to 0.75/sf	Upgrade	$ 485	$ 728	$ 607
Existing: R-11 Vaulted Roof	-	$ -	$ -	$ -
Existing: R-0 Walls	-	$ -	$ -	$ -
Existing: R-30 Raised Floor (from uninsulated Raised Floor): 545 sf @ $1.00 to $2.00	Upgrade	$ 545	$ 1,090	$ 818
Existing: R-0 Slab on Grade	-	$ -	$ -	$ -
Addition: Super Low E Vinyl Windows, U=0.36, SHGC=0.23 (from U=0.40, SHGC=0.36): 283.6 sf @ $1.35 to $1.60/sf	Upgrade	$ 383	$ 454	$ 419
Existing: Single Wood Windows, U=0.99, SHGC=0.74	-	$ -	$ -	$ -
E+A: Furnace: 92% AFUE (from 80% AFUE)	Upgrade	$ 1,500	$ 2,700	$ 2,100
E+A: Air Conditioner: None	-	$ -	$ -	$ -
E+A: R-6 Attic Ducts	-	$ -	$ -	$ -
E+A: Intantaneous Gas Water Heater: EF=0.80 (from 50 Gallon Gas: EF=0.60)	Upgrade	$ 900	$ 2,200	$ 1,550
Total Incremental Cost of Energy Efficiency Measures:		**$ 4,252**	**$ 7,864**	**$ 6,058**
Total Incremental Cost per Square Foot:		**$ 1.49**	**$ 2.76**	**$ 2.13**

3.0 Cost Effectiveness

The summary of results in this section are based upon the following assumptions:

- Incremental site electricity (kWh) and natural gas (therms) saved per year as calculated using the state-approved energy compliance software for the 2008 Building Energy Efficiency Standards, a research version of Micropas 8.

- Average utility rates of $0.163/kWh for electricity and $1.30/therm for natural gas in current constant dollars

- The assumption of no change (i.e., no inflation or deflation) of utility rates in constant dollars over time

- The assumption of no increase in summer temperatures, even though recent scientific studies suggest that global climate change will increase temperatures in the Western U.S. which in turn will increase air conditioning energy use

The Simple Payback data includes a cost-effectiveness analysis of the Ordinance with respect to each case study building design and assumes:

- No external cost of global climate change -- and corresponding value of additional investment in energy efficiency and CO2 reduction – is included

- The cost of money invested in the incremental cost of energy measures is not included.

3.1 New Single Family Houses

Building Description	Average Incremental First Cost ($)	Net Incremental Annual Energy Cost Savings ($)	Simple Payback (years)
2,682 sf (OptA-15%)	$1,525	$139	11.0
2,682 sf (OptB-15%)	$1,564	$146	10.7
Averages:	$1,544	$143	10.8

Annual Reduction in CO2-equivalent: 0.41 lbs./sq.ft.- year

Building Description	Average Incremental First Cost ($)	Net Incremental Annual Energy Cost Savings ($)	Simple Payback (years)
5,074 sf (OptA-15%)	$3,739	$187	20.0
5,074 sf (OptB-15%)	$2,517	$184	13.7
Averages:	$3,128	$186	16.8

Annual Reduction in CO2-equivalent: 0.28 lbs./sq.ft.- year

3.2 Addition to Existing Homes

Building Description	Average Incremental First Cost ($)	Net Incremental Annual Energy Cost Savings ($)	Simple Payback (years)
E+A 2,845sf (OptA1)	$4,184	$139	30.0
E+A 2,845sf (OptA2)	$5,428	$146	37.1
E+A 2,845sf (OptB)	$6,058	$146	41.4
Averages:	$5,223	$144	36.2

Annual Reduction in CO2-equivalent: 0.38 lbs./sq.ft.- year

Conclusions

Regardless of the building design, occupancy profile and number of stories, the incremental improvement in overall annual energy performance of buildings under the Santa Clara Green Building Ordinance and the 2008 Title 24 Building Energy Efficiency Standards is cost-effective. However, each building's specific design, occupancy type and the design choices may allow for a large range of incremental first cost and payback. As is the case in just meeting the requirements of the Title 24 energy standards, a permit applicant complying with the energy requirements of the Santa Clara Green Building Ordinance should carefully analyze building energy performance to reduce incremental first cost and reduce the payback for the required additional energy measures.

4.0 Text of the Santa Clara Green Building Ordinance

ORDINANCE NO. NS-1100.107

ORDINANCE OF THE BOARD OF SUPERVISORS OF THE COUNTY OF SANTA CLARA AMENDING SELECTED PROVISIONS OF CHAPTER III OF DIVISION C3 OF THE COUNTY OF SANTA CLARA ORDINANCE CODE, RELATING TO GREEN BUILDING REGULATIONS

THE BOARD OF SUPERVISORS HEREBY MAKES THE FOLLOWING FINDINGS:

I. FINDINGS PURSUANT TO HEALTH AND SAFETY CODE SECTIONS 18941.5 AND 17958.7:

The proposed Chapter III, "Green Building Regulations" of Division C3 of the County Ordinance Code sets forth minimum green building standards for new single family residential development. The application of these requirements will further the goals and policies of the County General Plan regarding environmental protection and will reduce future greenhouse gas emissions in accordance with the goals established under the Global Warming Solutions Act.

To the extent the requirements of this ordinance are deemed to constitute changes or modifications to the requirements of the California Building Standards Code and the other regulations adopted pursuant to Health and Safety Code Section 17922, this Board of Supervisors expressly finds that the provisions of this ordinance are reasonably necessary because of local climatic, geological, or topographical conditions for at least the following reasons:

(1) In the United States, buildings account for 39 percent of total energy use, 12 percent of the total water consumption 68 percent of total electricity consumption, 38 percent of the carbon dioxide emissions, according to statistics provided by the federal Environmental Protection Agency.

(2) Energy consumption from the residential sector in Santa Clara County was the highest among all Bay Area counties, according to 2006 data from the California Energy Commission's Energy Consumption Data Management System.

(3) Green building is a practice of building construction, operation and design that intends to minimize the environmental impacts of the buildings upon the natural and human environment by preserving natural resources, reducing energy and water usage, and improving indoor environmental quality.

(4) Reduction of energy usage as a result of efficiencies and conservation required by this ordinance is likely to have local benefits such as cost reduction, additional available system energy capacity, reduction in electricity demand, and a reduction in greenhouse gas emissions. These benefits are likely to become increasingly important as the effects of global warming and climate change are felt locally.

(5) Environmental benefits of green building include: enhanced and protected biodiversity and ecosystems, improvements in air and water quality, reduced waste streams, and conservation of natural resources according to the EPA. Other benefits of green building according to the EPA include improved occupant productivity, enhanced occupant comfort and health and minimized strain on local infrastructure. Therefore, the design, construction, and maintenance of buildings and structures within the Santa Clara County is likely to have a beneficial impact on the County's environmental sustainability, resource usage, energy efficiency, waste management, and the health and productivity of occupants.

(6) The adoption of California Assembly Bill 32 (the "Global Warming Solutions Act") recognizes that greenhouse gas ("GHG") emissions from California are contributing to global warming and the legislation mandates that statewide GHG emissions be lowered to 1990 levels by 2020. The use of green building practices furthers, at the local level, the environmental protection goals of the County General Plan and the greenhouse reduction goals set forth under the Global Warming Solutions Act by reducing energy and water usage while conserving resources and creating healthier environments.

II. FINDINGS PURSUANT TO THE CALIFORNIA ENVIRONMENTAL QUALITY ACT ("CEQA"), Public Resources Code § 21000 *et seq.*:

The adoption of this ordinance is categorically exempt from the requirements of CEQA pursuant to Section 15308 of the CEQA Guidelines (14 Cal. Code Regs. § 15308) because it is an action taken by a regulatory agency for the protection of the environment and no exceptions to this categorical exemption apply.

III. OTHER FINDINGS

(1) The goals of this ordinance are consistent with the County of Santa Clara General Plan, which sets forth goals to minimize the environmental impacts of land development and the construction of buildings while preserving the natural landscape and conserving water and energy.

(2) The regulation of building design, construction and operation lies with the realm of police power traditionally assigned to states and their political subdivisions.

(3) The County does not intend to mandate installation of products whose efficiencies exceed applicable federal or state standards that govern the efficiency of such products, or to set up a system of local appliance standards.

(4) Nothing in this ordinance is intended to duplicate, contradict, or enter a field which has been fully occupied by, federal or state law or regulation.

THE BOARD OF SUPERVISORS OF THE COUNTY OF SANTA CLARA ORDAINS AS FOLLOWS:

SECTION 1: Section C3-52 of Chapter III of Division C3 of Title C of the County of Santa Clara Ordinance Code is amended to read as follows:

Section C3-52. Applicability

Upon the effective date of this chapter, all Covered Projects shall submit to the Compliance Official a completed Green Building Project Checklist but no points or certification shall be required to be achieved until August 1, 2009 or whenever the cost-effectiveness determination for this Ordinance is approved by the California Energy Commission, whichever comes later.

Effective August 1, 2009, or whenever the cost-effectiveness determination for this Ordinance is approved by the California Energy Commission (whichever comes later), all Covered Projects shall be required to meet the requirements set forth in Table I of Section C3-53, except that no point requirements or certification shall apply to any project for which a building permit application is submitted prior to August 1, 2009.

SECTION 2: Section C3-53 of Chapter III of Division C3 of Title C of the County of Santa Clara Ordinance Code is amended to read as follows:

Section C3-53. Standards for Compliance

Table I
County of Santa Clara
Green Building Standards for Compliance for Private Development
Single Family Residential Construction

Type of Project	Checklist Required	Minimum Requirements or Standard	Verification
Remodels & Additions			
Minor Remodel and Addition < 500 square feet[8]	No Requirement *(Handouts and Checklists Provided)*		
Major Remodel[1] and Addition ≥ 500 square feet[7]	Green Point Rated Existing Home Checklist[2]	Submit Checklist	Self Verify
New Residences & Rebuilds			
New Residence and Rebuild ≤ 1,200 square feet	No Requirements *(Handouts and Checklists Provided)*		
New Residence and Rebuild 1,201 ≤ 3,000 square feet	Single Family Green Point Checklist [3] or LEED for Homes Checklist [4]	50 points[6] or LEED Certification	Green Point Verification or LEED Certification
New Residence and Rebuild >3,000 square feet	Single Family Green Point Checklist [3] or LEED for Homes Checklist [4]	50 points[6] + 1 point per additional 100 square feet beyond 3,000 square feet [5] or LEED Certification	Green Point Verification or LEED Certification

[1] Major Remodel entails renovations of >$100,000 permit valuation.
[2] Green Point Rated Existing Home Checklist v1.0
[3] Single Family Green Point Checklist 2009 Edition
[4] LEED® for Homes Project Checklist (January 2008)

[5] For purposes of determining points required, square footage shall be rounded to the nearest whole number (in 100's), for example 149 shall be rounded down to 100 and 150 shall be rounded up to 200.
[6] Points shall include Green Point Rated minimum points across all resource categories.
[7] Requirements do not apply to Residences where the resulting square footage is 1,200 square feet or less in size.
[8] Additions that result in the cumulative addition of over 500 square feet within a twenty four (24) month period (application date to application date) shall not be included within this classification.

SECTION 3: Section C3-54 of Chapter III of Division C3 of Title C of the County of Santa Clara Ordinance Code is amended to read as follows:

Section C3-54. Administrative Procedures

(a) The procedures for compliance are as follows:

(1) Building Plan Check Review. Any submittal of an application for a building permit for any Covered Project shall include a Green Building Project Checklist. This checklist shall be incorporated onto a separate plan sheet included with the building plans. A Qualified Green Building Professional shall provide evidence of adequate Green Building Compliance to the Compliance Official to satisfy the requirements of the Standards of Compliance set forth in Section C3-53, prior to issuance of a building permit.

(2) Final Building Inspection, Verification, and Occupancy. Prior to final building inspection and occupancy for any Covered Project, a Qualified Green Building Professional shall provide evidence of Green Building Certification, to the Compliance Official to satisfy the requirements of the Standards of Compliance set forth in Section C3-53.

(3) Final Determination of Compliance. Prior to final building inspection for a Covered Project, the Compliance Official shall review the documentation submitted by the Applicant and determine whether the Applicant has achieved the required compliance as set forth in the Standards for Compliance under Section C3-53. If the Compliance Official determines that the Applicant has met the requirements of Section C3-53, the final building inspection may proceed, provided the Covered Project has received all other required applicable approvals. If the Compliance Official determines that the Covered Project has not met the requirements of Section C3-53, the Compliance Official shall find one of the following:

i. Substantial Compliance. An Applicant may submit evidence showing that the Applicant is unable to immediately meet all of the requirements of Section C3-53 but will meet all necessary requirements within a six-month period. Upon this submission (and provided all other applicable requirements have been met) the Compliance Official may issue a Temporary Certificate of Occupancy for a six-month period within which the Applicant must meet all of the requirements of Section C3-53. Circumstances under which a Temporary Certificate of Occupancy may be issued include, but are not limited to: installation of, or compliance with all Green Building measures as required under Section C3-53 but Green

Building Certification has not occurred or been processed, and the unavailability of Green Building materials. An additional six month extension may be granted at the discretion of the Compliance Official. The total extension term shall not exceed one year. If the Applicant meets the requirements of Section C3-53 within this extension period (as determined by the Compliance Official), final building inspection may proceed. If the Applicant does not meet the requirements of Section C3-53 after the total one-year extension period has run out, the Compliance Official may revoke the Temporary Certificate of Occupancy and the project shall be classified as a Non-Compliance Project.

ii. Non-Compliance Project. If the Compliance Official determines that the Covered Project does not meet the requirements of Section C3-53 and is not in Substantial Compliance (as specified above), the Covered Project shall be determined to be a Non-Compliance project, and the final inspection for this project shall not occur until the project is brought into full compliance with Section C3-53 (provided all other applicable requirements have been met).

(4) Lack of Inspectors. If the Compliance Official determines that there is a lack of Qualified Green Building Professionals available to perform green building inspections and / or certifications within a timely manner, the Compliance Official may, at his or her discretion, allow inspections and/or certifications by qualified employees of the County of Santa Clara, or Self Verification by the Applicant that the project is in Compliance with Section C3-53.

(b) The Director of Planning and Development shall promulgate any rules and regulations necessary or appropriate to achieve compliance with the requirements of this Chapter. The rules and regulations shall provide, at minimum, for the incorporation of green building requirements of this Chapter into checklist submittals with building permit applications, and supporting documents demonstrate compliance with this Chapter.

PASSED AND ADOPTED by the Board of Supervisors of the County of Santa Clara, State of California on _____ by the following vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

_____
Liz Kniss, President
of Supervisors

Board
Signed and certified that a copy of this document has been delivered by electronic or other means to the President, Board of

Supervisors.
ATTEST:

_____
Maria Marinos
Clerk of the Board of Supervisors

APPROVED AS TO FORM AND LEGALITY:

_____
Lizanne Reynolds
Deputy County Counsel